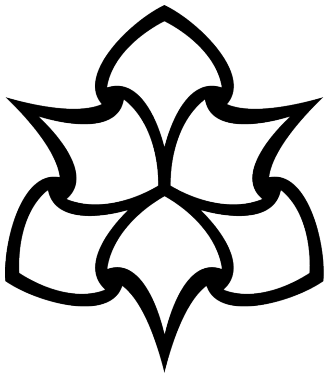

Insurance as maladaptation: Resilience and the 'business as usual' paradox

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Abstract

Insurance and compensation are cited as critical elements of resilience to natural and non-natural hazards alike. As a strategy of risk management, it emphasises peace of mind, financial recompense and the swift restoration of a 'business as usual' status for civil, social and commercial life. Yet despite the contribution of insurance to risk management, the synergies with progressive or adaptive articulations of resilience are not sufficiently explicated. This paper explores the fundamental contradictions of insurance as a form of resilience through a study of flood risk management. It demonstrates how insurance regimes serve to structurally embed risky behaviour and inhibit change after detrimental events. As such, transformative interpretations of resilience conflict with the long-standing principles and operational norms of insurance that privilege normality. The paper concludes that, despite its currency within resilience discourses, insurance is maladaptive and that insurance regimes reinforce exposure and vulnerability through underwriting a return to the 'status-quo' rather than enabling adaptive behaviour.

Keywords: Resilience, adaptation, insurance, flood risk management, climate change

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Introduction

Resilience has emerged as central to contemporary political discourse. It is widely heralded as possessing the potential to manage a varied range of detrimental events, from 'natural' hazards and the impacts of climate change, to the coordination of significant infrastructure projects or intricate financial systems. Whilst espousing positive notions of recovery and adaptability within an interconnected and unpredictable world, resilience has political and managerial dimensions that seek to exert control over uncertainties (White and O'Hare, 2014). Along with allied notions of preparedness and precaution, resilience contains a compelling anticipatory logic 'whereby a future becomes cause and justification for some form of action in the here and now' (Anderson, 2010: 778). However, efforts to achieve resilience attract significant critique, particularly pertaining to its manifestation in policy and practice (Cote and Nightingale, 2012; Pendall et al., 2010; Smith and Stirling, 2008, 2010). Consequently, resilience is becoming highlighted as a 'term for interrogation and contest rather than a paradigm to be accepted' (O'Hare and White, 2013: 276). This paper contributes to this emergent literature by examining insurance within the wider political context of resilient societies.

Insurance and compensation schemes, long-standing methods of managing risk, have become widely advocated as a means to facilitate resilience. Globally, the marketing, selling and purchase of insurance (and reinsurance) composes a lucrative business; insurers and reinsurers are amongst the largest and wealthiest global corporations. The insurance sector is central to framing and operationalising the broader societal management of risks for two distinct reasons: their integral role in providing a calculative rationality for risk transfer (Dean, 1999; Intergovernmental Panel on Climate Change (IPCC), 2012) and in providing financial recompense (as well as other forms of support) to underwrite recovery and reconstruction. As part of this latter activity, insurers provide services, advice and assistance in the immediate aftermath of a disaster, thereby becoming central to framing response efforts (IPCC, 2012: 11). Despite this prominence and the burgeoning academic interest in themes pertaining to adaptive capacity, disaster response and resilience, few accounts offer a critical evaluation of insurance as a dimension of resilience and the broader implications for hazard management (with notable exceptions – see Lamond and Penning-Rowsell, 2014; Penning-Rowsell and Pardoe, 2012; Penning-Rowsell et al., 2014). This becomes ever more prescient when set within a context of neoliberalisation in which the rollback of centralised states places extra responsibilities on citizens with regard to the risks that they, and their assets, may face.

This paper contributes to the understanding of the localised impacts of risk transfer (IPCC, 2012: 323) through the formal insurance industry in Europe. The paper initially charts the emergence of the 'risk society' as a feature of late modernity before exploring the links to resilience. We then turn to consider the responsibilities for risk governance and the role of insurance. The next section highlights key operational elements of insurance: risk transfer and moral hazard, betterment and risk pooling, to demonstrate how these may have a detrimental impact upon the ability of insurance to facilitate resilience. There are three key messages of the article. First, long-standing operational norms of insurance, such as the focus on recovery and the restoration of 'business as usual', only deliver resilience characteristics associated with stability (i.e. recovery and coping). In doing so, insurance serves to industrialise, commercialise and reproduce the consequences of risk rather than engendering any system transitions or adaptive behaviour. Second, by consequence, insurance catalyses a cycle of maladaptation, enabling individual recovery, but inhibiting adaptation and sustaining exposure. This ultimately reinforces unknowable risk and normalises potentially regressive cycles of exposure and recovery. Third, the pursuance of resilience via insurance effectively conforms to the

norms of neoliberalism and holds little transformative power – either with regard to changing the sector itself or altering citizen behaviour and adaptation.

The paper draws on research undertaken between 2009 and 2013 as part of a multidisciplinary European Union (EU) FP7-funded project. The project combined engineers, scientists and academics to test innovative technologies to increase resilience to flood events within wider flood risk management systems (see Connelly et al., 2015; White et al., 2014). The authors examined the way in which flood resilient technologies could be integrated into current risk management practices across Europe, primarily through an appraisal of the governance of flooding in each of the seven partner countries.[i] A mixed methods approach was adopted to gather data and efforts were made to ensure that stakeholders influenced research design and outputs (Phillipson et al., 2012). National support groups were assembled in each country, including engineers, manufacturers, consultants, policy makers, flood risk managers and community representatives, to provide insights to risk governance, particularly regarding the nuances of flood insurance. In addition, two workshops were held in each of the seven partner countries: one with policy makers and another with flood-affected communities. Complementing this international work, a series of focus groups and interviews were conducted with stakeholders in the UK, such as technology manufacturers and installers, local, regional and national government, civil society, insurers and those at risk of flooding. Data referencing insurance was coded and then further interrogated with a view to understanding the influence that varying cultures and norms of insurance have with respect to broader interpretations of resilience.

The risk society and neoliberal resilience

The concept of the 'risk society' refers to how society, particularly the institutions of governance and public administration, is organised in response to risk (Beck, 1992; Giddens, 1991). Observers of the risk society propose that the threats emerging from modernity are delocalised (unbounded spatially and temporally), incalculable (hypothetical and based on ways of knowing) and non-compensatable (based on the scientific utopia of making the unsafe controllable), with significant implications for citizens, the market and government (Beck, 1992). Advanced nations are rendered vulnerable by the very catalysts of modernity: science, technology and the highly networked and globalised nature of contemporary society. The boundaries between 'natural' and 'manufactured' risks become blurred, with nature and society now acknowledged to be enmeshed (Beck, 2009). Modern societies have generally tried to defend against risks at all costs meaning that we are less likely to accept fate as an explanatory factor for peril. Rather, the public and decision makers alike demand explanations and mechanisms to manage risk as well as financial compensation (Mythen, 2004). A range of economic and industrial sectors – including those promoting insurance and adaptive technologies – has been stimulated to service the risk society.

Against this context, the rhetorical promise and practical appeal of the concept of resilience have grown. From a political perspective, resilience is cited as a means of governing uncertainty, in particular, anticipated and unanticipated future risks or shocks. The conceptual understanding of resilience is traceable to the work of Holling (1973) who delineated two broad interpretations of the concept: 'engineering' and 'ecological' resilience. The former refers to the ability of an ecosystem to return to a state of stability after a disturbance, or to absorb changes 'and still persist' (Holling, 1973: 17). Notably, this interpretation advocates a return to a preshock status; 'business as usual' in insurance parlance. In contrast, ecological resilience emphasises systemic change or adaptation to a new normality that may be less vulnerable to risks (see Adger, 2000; Walker and Cooper, 2011 for context). Such approaches to resilience emphasise the potential for reorganisation; not just 'bouncing back' to a previous position following a shock, but evolving, 'bouncing- forward' or transforming to a state that is less

vulnerable (Maguire and Cartwright, 2008; Shaw and Theobald, 2011). In simple terms, this is the distinction between stability or change (see White and O'Hare, 2014) or a contest between pessimism and optimism: is a shock something to be (conservatively?) withstood, or should it be (progressively?) adapted to (see Leach et al., 2010; Manyena et al., 2011; Shaw and Maythorne, 2012). Recent accounts emphasise the potential value in more transformative conceptualisations of resilience, whereby adaptation is encouraged, with risks reduced or even avoided altogether (Amin, 2013; Davoudi, 2012; Smith and Stirling, 2010).

Literature exploring the implementation of resilience through policy and practice demonstrates the sheer complexity of contemporary societal and ecological challenges, further inflating the currency of resilience whereby it becomes central to efforts to counter perils that the nation–state appears powerless or unwilling to prevent (White and O'Hare, 2014). The concept now resonates across a multitude of sectors, interests and spatial scales, from the local to international (see Coaffee, 2013), and a plethora of actors from institutions and professionals to individual citizens, who are encouraged to increase their capacity to cope with shocks. For example, recent studies examine resilient regions (Bristow, 2010), resilient security (Coaffee and O'Hare, 2008), flooding and resilience (White, 2010) and resilient climate adaptation. Many such accounts are united by a desire to evaluate the translation of resilience from rhetoric to reality. Given the term's 'pervasive[ness]' (Walker and Cooper, 2011: 144) and semantic malleability, it has been likened to sustainability; a similarly 'empty concept' (Guy and Marvin, 1999: 273) destined to be subjected to competing claims. Others too have documented the ambiguity surrounding the concept (Brand and Jax, 2007; Davoudi et al., 2012; Gleeson, 2008); an attractive yet inherently unspecific concept (White and O'Hare, 2014) demanding to be treated with 'caution' (Porter and Davoudi, 2012).

Elsewhere attention is drawn to the hegemonic qualities of resilience, which is viewed as having predetermined naturalistic elements (Neocleous, 2013: 7). Other critiques attack the fundamental premise of resilience as appropriated by modern neoliberal economies, perhaps even representing another dimension of governmentality. It has been suggested that manifestations of resilience catalyse individualised citizen–consumers, expanding the availability of market-based 'solutions' or promoting preparedness and self-organisation in the face of hazards, mirroring dominant neoliberal ontologies (Collier, 2014; Joseph, 2013; Shaw, 2012). There are, therefore, clear synergies with responsibilisation agendas that drive autonomous self-governance, further invoking a correlation between resilience and neoliberalism. It is to this theme that the paper now turns.

Insurance, the resilient subject and 'new prudentialism'

As knowledge about risk expanded amongst both the academic and policy communities in the period of late modernity, 'the various strategies which individuals are required to practise upon themselves to avoid risk have equally proliferated' (Lupton, 1999: 90). Insurance is one such risk management strategy.

Arguing that the risk society is incalculable, Beck (2009: 110) cites the insurance industry as instrumental in determining its frontiers. This thesis has been extensively critiqued because insurers continue to indemnify against certain catastrophic loss, not all risks are necessarily 'catastrophic', and advances in mapping and assessments may assist the understanding of risks (see Bougen, 2013; Collier, 2008). Nevertheless, Beck's assertion has resonance for regimes of insurance as it emphasises how the sector is a core enabler of risk management by distributing risk across space and time (Luebken and Mauch, 2011). In short, insurance allows risk to be 'rendered calculable and governable' (Lupton, 1999: 87; also Ericson et al., 2003) through expert knowledges and discourses (Lupton, 2006). In this sense, insurance is an instrument to monetise or commodify risk and, in so doing, to rationalise fate. Indeed, the very discourse of risk and the actuarial activities that underwrite insurance

essentially aim: 'to master time, to discipline the future' (Ewald, 1991: 207). Reflecting previous observations regarding the neoliberalising tendencies of resilience, insurance has a 'special kind of alchemy' (Ewald, 1991: 200), whereby catastrophic events become immense business opportunities for insurers and reinsurers (Bougen, 2013). By consequence, a significant global insurance industry has been nurtured, which has the potential to govern peril, not just by attaching a probability to a threat or hazard, but by attaining a deeper understanding of the financial implications for citizens and providing a basis for that risk to be actively managed.

In this vein, regimes of insurance have emerged not only as a technical enterprise that objectifies certain outcomes of complex systems, but a mode of enabling citizens and institutions to be resilient (Ball et al., 2013), or adapt to changing conditions (Wilby and Keenan, 2012). Whilst calculations of risk are aggregated across populations, much of the discourse of risk management prioritises how individuals conduct their lives. The industry also correlates societal risk to the individual, such as by performing credit checks on the ability to pay or taking into account a host of personal and socioeconomic circumstances from occupation to age and income. These and similar such resilience strategies, therefore, frame those exposed to hazards not as victims but as stakeholders in, and agents of, risk management. Such initiatives help define civic and social responsibility, ensuring it becomes a matter of personal provision rather than a collective good (Lemke, 2001; Rose, 1996). Ignoring the responsibilities associated with this agenda is portrayed as foolhardy: 'Risk avoiding behaviour, therefore, becomes viewed as a moral enterprise relating to issues of self-control, self-knowledge and self-improvement' (Lupton, 1999: 91; see also Rose, 1996, 2000).

Civic and individual self-reliance is, therefore, increasingly central to risk management, hazard adaptation and preparedness and, by extension, to the realisation of resilience. However, research has expressed scepticism regarding the extent to which these actors are autonomous, or whether, in recognition of the disciplinary potential of resilience policies, it would be more accurate to perceive them as resilient 'subjects' (see Coaffee, 2013; O'Malley, 2010). Citizens may well be encouraged to make informed choices, yet the potential for more empowered outcomes is subservient to the prevailing demands of capital and markets. The citizen is, therefore, at once a neoliberal subject and an instrument of neoliberalism: responsibility becomes not a matter for the state but for individuals and civil society organisations through regimes that equate to a 'new prudentialism' (O'Malley, 1992). Similar trends have been observed in other fields such as health and social security where efforts to promote private insurance place the onus on individuals to manage their exposure to potential misfortune (Greco, 1993).

Given the reorientation of individuals toward the centre of risk management, the paper now examines the specific issue of flooding, the most common natural hazard and a key focus of the resilience discourse (Adger et al., 2005; White, 2010).

The flood resilient citizen

The economic and social consequences of flooding are significant. Between 1998 and 2009, European flooding caused 1126 deaths and displaced around half a million people (European Environment Agency, 2011), and, as climate change researchers project, the costs are likely to only increase (Committee on Climate Change, 2014; IPCC, 2014). Traditionally, protection from flooding was predominantly provided by state-sponsored, engineered defences. But changes in precipitation and runoff patterns, associated with climatic change and urbanisation, have highlighted the sheer dynamism of flooding, and the difficulties in 'defending' against water based on probabilistic, historical data (White, 2013). This has stimulated an international policy shift from flood 'defence' to flood 'risk management' (Butler and Pidgeon, 2011; Johnson and Priest, 2008), underwritten by a *rescaling* and *rescoping* of flood risk management

obligations. For instance, there has been a shift in emphasis from central government management to local scales (e.g. Johnson et al., 2007) with responsibility for flood risk management moving from the state to multiple stakeholders, including the general public (Environment Agency, 2009; Johnson and Priest, 2008). Individuals and communities are, therefore, commonly promoted as being at the vanguard of risk management, or in other words, as central to building the adaptive capacity of society. Underlining this, as the production and publishing of freely available flood risk maps have continued apace throughout Europe (European Commission, 2007), citizens are implored to take more responsibility for assessing their own vulnerabilities to flooding. This has been complemented by policies aiming to prepare citizens to accept the inevitably of flooding, in other words, to 'live' with water (Department of Environment, Food and Rural Affairs, 2005) or to make 'room' for rivers (Ministry of Transport, Public Works and Water Management, 2006; Ruimte voor de Rivier, 2012).

Combined, these circumstances foster initiatives that underpin resilience narratives: if floods appear impossible to prevent and risk is unpredictable, then recovery, adaptation and personal responsibility are a logical focus. As part of this 'responsibilisation' agenda, policy makers and citizens are increasingly attuned to technological measures and social initiatives that support resilient adaptation. With respect to flooding, these include products that can keep water out of vulnerable places or that limit damage and facilitate recovery (see Bachelor, 2012; Pitt, 2008; Soane et al., 2010). Policy now also advocates that: 'Householders and businesses at flood risk should take the appropriate steps to better protect their properties through property level resistance and resilience measures' (HM Government, 2011: 26). As noted earlier, such market-orientated responsibilisation transforms people from subjects to active 'consumers', recasting the relationship between state and individual. This reflects self-reliance dimensions of resilience and correlates to the neoliberalising tendencies of contemporary risk management. In addition, recent research has examined the economic and innovation benefits that may be gained through the growth of the flood resilience technology market (Bowker, 2007; Entec UK and Greenstreet Berman, 2008), further associating flood resilience agendas to the risk society thesis and neoliberal ideologies.

The provision and purchase of insurance represent another dimension of individualised risk management. Through the provision of financial recompense for loss, insurance enables recovery and provides security and confidence in the face of potentially devastating disruption. The benefits of insurance are widely recognised – and often promoted – by flood risk managers. One research participant, a UK local councillor, acknowledging that many did not possess cover, stated 'we need to encourage people to engage with insurance'. Floods between 1998 and 2009 in Europe resulted in insurance losses of at least E52 billion (European Environment Agency, 2011), whilst the summer 2007 floods in the UK were estimated to have directly cost the insurance industry around »3 billion from 180,000 separate claims (see Chatterton et al., 2010; Pitt, 2008: xxi). As a result, insurers naturally seek to limit losses by either raising the price of premiums or the level of excess payable by the consumer in the event of a claim. Data from interviews with participants from the insurance sector suggest each flood claim costs on average between £20,000 and £40,000. The research revealed there are examples where the same homes get flooded and restored in the same manner multiple times.

There is little doubt that government policy encourages citizens to become more responsible for their own resilience. But this is not a simple process. Being well informed or 'risk-literate' is one challenge. Accepting and being able to respond to these new responsibilities is much more problematic. As resilience is commodified, through the purchase of insurance or flood protection products, issues of acceptability and affordability become a further concern. Demonstrating this, in one focus group, a municipal officer cited an example of where even when fully funded flood resilient technologies were offered to people: 'but they

still didn't put them in'. The respondent suggested this was due to a lack of sense of ownership of responsibility, particularly in areas of disadvantage, where properties are rented, or where occupancy is transient. This instance reveals the presence of deeper questions connected to how resilience is not benignly accepted; rather, it is potentially thwarted by wider structural forces. We next analyse three key principles of insurance – risk transfer and moral hazard, betterment and risk pooling – enabling a critique of the notion that insurance is an effective vehicle for resilience.

Risk transfer and moral hazard

Insurance is a strategy of risk transfer from those immediately exposed to a peril to another entity that, through a legal-binding contract, agrees to indemnify in the event of loss. This usually takes the form of an obligation to provide services and/or financial compensation in the aftermath of a hazard. This is commonly a transaction between individuals or businesses and the private sector. However, under particular circumstances and in certain countries, the state may fulfill this remit. For example, the research revealed in the Netherlands, the state operates as de facto flood insurer mainly due to the nation's threat from potentially catastrophic coastal flooding. Similarly, in Germany, a small proportion of buildings are considered too risky to be insurable. In such cases, insurance for natural catastrophes, including major flooding, has generally been underwritten by public compensation packages (see Botzen and van den Bergh, 2008 for a further discussion). Cyprus and the UK provide further examples of this public–private hybrid model where flood insurance is generally provided as part of private household insurance, but in the past, flood victims have also been compensated by the government.[ii] In these scenarios, the state essentially underwrites the privatisation of resilience when it is uneconomic for the sector to operate under normal market conditions.

Whilst insurance provision and loss compensation norms are dependent upon the specifics of the hazard, political context and the services or compensation required, they all represent a means of managing uncertainty. Insurance essentially mitigates potentially devastating impacts of risk through the purchase of a smaller, predetermined premium. This process of risk transfer has significant benefits for citizens and businesses, providing a buffer against the impact of hazards and guaranteeing support at a time of great trauma. With regard to hazards such as flooding, depending upon the quality of the cover provided, insurers are responsible for immediate assistance, often providing temporary accommodation, meeting the costs of repair, paying for the replacement of possessions and in the case of commercial clients compensating for lost revenue and/or business continuity. In addition to providing financial support, insurers also become responsible for helping organise recovery, for example, by arranging for favoured contractors to conduct work. Indeed, such services are used to promote insurance schemes as companies vie to provide attractive packages in a fiercely competitive marketplace. Insurers also purport to provide a more intangible 'peace of mind' to those whose lives or livelihoods are vulnerable to threats. In this sense, insurance is an important strategy for providing certainty and security (or 'business as usual'), underwriting citizen, societal and business confidence.

So, insurance promises that the impacts of perils can be ameliorated and where shocks are experienced, there is an efficient return to 'normality'. Similarities with aspects of resilience discourses are striking in this regard. Yet, whilst seemingly synergistic, the fundamental insurance principle of risk transfer, whereby property owners cede power to other agencies, has significant implications for responsibility and autonomy. Despite providing support for policyholders, as a corollary of transferring risk responsibility is diffused between actors and agencies. This creates a distinction between communities immediately subjected to the potential hazard and those bearing the responsibility to respond and provide recompense. By consequence, the willingness to take measures to reduce risk exposure or to transform

behaviour can be eroded, a situation that insurers refer to as 'moral hazard' or 'risk compensation'. Although promoted as a form of risk responsibilisation, the transfer of risk (and the related moral hazard) through the purchase of insurance may therefore partly shelter citizens from aspects of the responsibilisation agenda (Thieken et al., 2006; Treby et al., 2006).

The challenge posed by moral hazard is a long-held concern of the insurance sector (Adams, 1995; Lamond et al., 2009). Indeed, it is ironic that an industry predicated on protecting clients can have the undesirable side effect of reducing incentives to adopt less 'risky' behaviour. Similar to the 'Peltzman Effect', whereby people react to interventions that purportedly increase safety by escalating risky behaviour (Peltzman, 1975), the impact of 'safety' features is undermined, which paradoxically renders the system as a whole more vulnerable. Some insurance providers make efforts to ameliorate the potential for moral hazard by having contractual clauses that attempt to share or reduce financial exposure to a peril, for instance by having large excess charges or withholding payment if the insured is found to have been grossly negligent. Although moral hazard instinctively appears pejorative, it is not entirely unwanted by insurance companies. In much the same way that Giddens (1998: 63) identified an opportunistic or 'positive' dimension of risk, exposure stimulates demand for services and does not automatically equate to a loss if income from premiums is priced accordingly.

The issue of moral hazard remains important when the state acts as an insurer of last resort, either by compensating households or the losses of insurance companies after an extreme event. This situation limits, or even entirely negates, capital exposure and inhibits the self-organisation elements of resilience that lead to transformative change. If the costs of a hazard, such as flooding, fall elsewhere, there may be limited financial incentive for communities to adapt. In this respect, moral hazard can occur between the insurer and the insured or both of these parties and the state, as either entity may be insulated from risk. In the Netherlands and Spain, for example, Project Steering Group consultees revealed that there is no real market for flood resilience, via insurance or technology, as the state compensates in the event of a flood. Steering Groups similarly reported that even where awareness of adaptive measures was high, closer analysis demonstrated that the key features of insurance – such as the betterment principle – precluded wider uptake. It is to this issue that the paper now turns.

The 'betterment' barrier

Multiple research participants including representatives from insurers, civil society and local authority officers, identified the immediate aftermath of a hazard as offering a prime 'window of opportunity' for people to adapt to hazards, such as by installing flood resilient building materials into properties or even relocating. This corresponds with recent research and policy analysis identifying disasters as critical in mobilising agendas (Kingdon, 1995), creating momentum for policy change (Johnson et al., 2004, 2005) or providing opportunities for capacity building (Kuhlicke and Steinfurher, 2013). Here, responsibilisation may be seen as an iterative learning process based on reflection on past behaviour and the presence of feedback loops that may drive change.

In practice, however, after flooding, the insurer becomes the de facto owner of properties. The 'insured' surrender both responsibility to repair property and a significant degree of autonomy in deciding how property reinstatement should take place. This brings a number of perverse effects that highlight both the power of insurance and insurers in enabling resilience and how its norms of operation inhibit this from being realised. Here, opportunities for individual action are undermined as the operational norms of the insurance sector focus on a return to a pre-shock state as rapidly as possible. A key issue is that insurance schemes commonly adhere to the indemnity principle whereby property 'betterment' (otherwise known as property improvement) is forbidden. Rather, insurers 'promise to put the property back to

where it was' (interview with an insurer) and reinstate to the original condition. This frequently excludes the installation of resilient materials as they may cost slightly more or are not a 'like-for-like' replacement. Properties, though restored, are no better adapted to cope with any future flood, ultimately rendering society no more resilient in the most progressive sense of the concept. This was neatly summarised by one research participant, a homeowner, who reported: 'After the first flood my insurer was great! They sorted everything out – a new home; even a new telly! But that didn't stop flooding a second time. Or a third time. . .'

Some insurers do take a progressive stance, but this is limited in the face of repeat flooding. Another property owner, who had suffered from two floods, said that: 'A tiled floor was installed [by their insurer] in the kitchen after the 2008 flood. The insurance company still insisted on it being taken up and re-laid following the 2009 flood'.

In workshops and focus groups with technology innovators, manufacturers and installers, the 'no betterment' principle was consistently identified as a major obstacle to the integration of flood resilient technologies in properties. One manufacturer reflected on how the 'no betterment' principle may drive risk: 'as a result properties can be flooded three or four times'. A manufacturer of a resilient building material called for this circumstance to be addressed: 'There is a need to establish minimum standards for property reinstatement. There is no mandatory requirement to do any better here'.

A workshop participant with significant experience of research in innovation for flood adaptation technologies noted that insurers had significant 'wariness' in the efficacy of new adaptive technologies. Given the myriad of variables in installing, using and maintaining technologies, another participant observed that insurers were reluctant, perhaps even unable, to price adaptive technology – what size of discount should it warrant? A representative from the insurance sector, who acknowledged the need to have greater faith in adaptive technologies, posed the question: 'We need to be able to trust resilient technologies: how can we have confidence?' Another stated that the requirements of insurers should drive the work of innovators, stating that they must ask: 'what are the conditions that they want in order to insure property?'

This correlation between insurance and adaptation was further noted by manufacturers and installers who broadly agreed that 'no betterment' principles not only prevented the wider use of technologies but also stifled innovation in adaptive technologies. This was, said one manufacturer, a major 'bump in the road to market for adaptation', whilst a policy maker also noted that insurance 'set the context for technology, both in its use in properties and in terms of innovation'. Extending this analysis, it was noted by one workshop participant (from a flood-affected community) that insurers should be at the forefront of encouraging the use of resilient technologies, given their considerable vested interest in the reduction of exposure: 'if it's not right then it's the insurers who would end up picking up the tab so it makes sense for them to lead on it – just like certain door locks are endorsed by insurers'. Another workshop participant (strategic stakeholder) acknowledged that insurers may refuse coverage to properties at higher risk of flooding, which may prove to be a 'major driver' of individual adaptation.[iii] This argument was supported by a participant working in the field of flood risk assessments: 'Insurance companies are driving innovation in mapping and modelling, but not in resilience'. It was additionally noted that the need to maintain a competitive edge ensures that such innovative work is not shared between companies, meaning that the vast majority of research participants indicated that the state needs to ensure that adaptive measures are encouraged, if not made mandatory.

The analysis demonstrates that in the case of property reinstatement, insurance inhibits adaptation to flooding, thus frustrating progressive forms of resilience. The next section examines a further component of this – risk pooling.

Risk pooling

Associated with the transfer of risk is the principle of 'risk pooling' inherent to all insurance schemes. Under normal circumstances, insurance premiums are paid into a shared fund that is used to compensate in the event of a peril occurring. This has the effect of dissipating financial exposure throughout a community of risk shareholders: 'by pooling premiums and insured events, the financial impact of an event that could be disastrous for one policyholder is spread among a wider group' (Insurance Europe, 2012: 5). Risk pooling also occurs with regard to individual premiums. For example, in the seven European countries surveyed, it is common for flood insurance to be bundled together with a general household and contents package where separate perils, such as burglary and flooding, are combined and given one price. Whilst convenient for both the insured and the provider, this 'bundling' masks the particularities of any one individual threat, cross-subsidises risks and provides a further hindrance to adaptation. It has been further suggested that future climate change may severely test the ability of certain risk transfer and risk pooling mechanisms to continue to adequately function (Lamond and Penning-Rowsell, 2014).

The extent to which risk pooling and subsidisation occurs has led to insurance regimes falling within one of the two broad catagorisations of risk management (O'Neill and O'Neill, 2012). The first is individualist or risk-sensitive insurance, which is provided through highly competitive markets in which individuals' payments are broadly proportional to their level of risk. The second refers to solidaristic insurance regimes that have been described as 'risk insensitive' modes of insurance, whereby those at lower risk subsidise those at higher risk (see Lehtonen and Liukko, 2011 for a discussion). In effect, this model pools exposure within aggregations of policyholders stretching across local, national or even international boundaries. An insurance sector interviewee noted that solidaristic flood insurance schemes provide little compunction to take preventative measures and adapt: 'An owner of a house which has already flooded doesn't pay more than other owners [who were not flooded]'. Situations where the state provides standardised cover (or compensation) regardless of individual risk is similarly solidaristic. Consultees reported that the uptake of flood resilience measures in countries where the state insures as a measure of last resort (such as in Spain and France) is relatively low because of the guarantee that homes will be reinstated by the government. In France, a research partner stated that the Natural Catastrophe insurance and reinsurance scheme is 'being improved in order to foster the development of more responsible behaviors at a collective and at the individual levels'.

In the UK, stakeholders noted that there has been a concerted effort to move toward risk reflective pricing partly in recognition that this might incentivise personal responsibility. But critically, solidaristic compensation schemes, either provided by the private sector or where the state act as insurers of last resort, have multiple social and economic benefits. They are generally more socially equitable than competitive market-led configurations of insurance provision, providing at least a basic level of protection to those most exposed to peril, who are often the most socially and economically vulnerable. Detailed analyses of housing markets observe that properties at risk of flood or requiring flood insurance have lower values (Harrison et al., 2001; Sirmans et al., 2005: 30). These same citizens may also lack the means to relocate to areas where exposure is limited. Without the intervention that solidaristic regimes bring, blight and inequality would deepen, stagnating housing markets and further suppressing the social and spatial mobility of residents. There is a further injustice in that these people also have the least incentive or financial capacity to 'purchase' risk management, either by partaking in insurance or other resilient measures at the property scale. Moreover, even in supposedly solidaristic schemes, cover can become prohibitively expensive. In the aftermath of flood events in the UK in 2007, it was found that many families and businesses on low

incomes, particularly those in social housing, were unable or unwilling to purchase resilience in this manner (Pitt, 2008).

This discussion of risk pooling demonstrates that insurance schemes, whether individualistic or solidaristic, may inhibit adaptive behaviours in terms of flood risk. When combined with risk transfer, moral hazard, and 'no betterment', insurance may be considered to be *maladaptive*.

Maladaptive resilience and the 'business as usual' paradox

Insurance regimes not only constitute an essential element of hazard response, but they frame other aspects of resilience in a more general sense by predetermining certain disaster anticipation logics and response pathways. Although insurance is promoted as a facet of resilience and hazard management more generally, some key contradictions became readily apparent through the analysis of flood insurance across Europe. The ambitions of insurance as a mode of resilience are overwhelmingly stability orientated, rebounding to a pre-shock 'normality' where risk is absorbed by a system, but rarely avoided or reduced. In particular, fundamental principles of insurance, such as risk transfer and moral hazard, along with operational norms including risk pooling and betterment, limit the extent to which adaptive behaviour can occur. Indeed, rather ironically, the responsibilisation agenda – so critical to the pursuit of resilience – is undermined by the identification of the insurance sector as a key delivery mechanism, reflecting the assessment that while citizens experience an 'individualized approach to risk', this occurs within 'a politicized social consciousness of the structural underpinnings of risks' (Tulloch and Lupton, 2003: 132). As a consequence, from an insurance perspective, resilience lacks transformative power, serving to underpin the status quo through adherence to historical norms and structures.

Moreover, insurance represents an outsourcing of resilience to the private sector where risk management is privatised and commodified; a service available for purchase. The commercialisation of resilience in this manner (although solidaristic) has an individualising and fragmenting effect, reducing the concept to a mode of consumption bolstered by general societal and media messages about the pervasiveness of risks and the need to assume personal responsibility. This approach serves to ascribe vulnerability to individual deficiencies, or to put it another way, to atomise risk management. A further result of the privatisation of resilience is that information becomes a currency of competitive advantage, effectively an ability to 'price' risk in a more effective manner than their competitors. Insurers noted that their modelling and maps could not be shared, even in aggregated formats, because of the need to retain a commercial advantage and to adhere to data protection conventions.

Insurance – and by extension resilience – therefore becomes yet another calculative rationality and a dimension of risk governmentality. Here, insurance regimes extend a very tangible reach beyond actuarial tables, becoming a calculative rationality and political technology bound within neoliberal structures (Collier, 2014). Through their surveys and subsequent influence of space, people and behaviours, insurers have disciplinary tendencies, rendering certain activities undesirable or inducing self-regulatory tendencies. The inability of some citizens to secure comprehensive and affordable insurance through the insurer's practice of red lining – the practice by which insurers delineate areas as being of a high or unacceptable risk – may have significant implications for the viability of vulnerable communities and the sustainability of housing markets. It must be acknowledged that the consequences of such punitive action for risk management can bring some benefits for other strategies of risk management. For example, refusing coverage for new development in areas at risk from flooding could curtail building on land that is particularly vulnerable to hazards. However, this contradicts the very essence of an industry predicated on risk management. Here the emphasis is on accurate pricing to prevent loss and consideration of the exposure of portfolios as a whole.

After all, a society without risk would have no need for insurance. Rather, there are limits to which the private sector will take on significant risks resulting in many configurations of flood insurance being hybridised with often significant public sector underwriting. This view is consistent with Beck's risk society thesis, which posits that in the absence of national support, the private sector would not wish to expose their profitability to the delocalised, incalculable and non-compensatable characteristics of modern society. Here, the role of the state as an insurer of last resort heightens moral hazards, removes incentives for insurers to create specialist flood risk markets, and ultimately reduces competition and innovation across the insurance sector.

The provision of compensation for flood damage, through insurance or through state sponsored grant aid, creates something of a paradox for resilience. It insulates many from the costs of living with risk, divorces drivers from outcomes, fosters moral hazards and short-term decision making, and potentially negates measures that can mitigate or adapt to risk. This is animated through the transfer and ownership of risk, the sharing of responsibilities and impacts, and of outsourcing resilience to the private sector. Under this analysis, insurance fosters a cycle of maladaptation: actions (or inaction) that may provide short-term benefits, but ultimately increases vulnerability to future change (see Barnett and O'Neill, 2010; IPCC, 2014). Maladaptation spans a diverse range of sectors and practical dimensions, and is an acknowledged perversion of aspiring climate change adaptation practice (Burton, 1997; McEvoy et al., 2006; Niemeyer et al., 2005). Similar terms of reference have been used to critique the sustainability and equity of adaptive practices, with one account questioning the potentially 'oxymoronic' nature of such initiatives (Brown, 2011). Of particular note to this analysis are maladaptive practices that may limit incentives to adapt, generating a disproportionate burden for particularly vulnerable groups, or that close down or limit choices available to future generations (Barnett and O'Neill, 2010). The inflexibility and lack of reflexivity concerning insurance practices can be used as a framework through which to further examine the intricacies of resilience.

Figure 1 illustrates the 'maladaptive cycle' with regards to insurance. Here the general societal message is that risks are pervasive and protection is beyond the means and remit of the state (1). Individuals should take responsibility and manage these risks, for instance through the purchase of insurance (2). Yet, insurance promotes rapid recovery and does not encourage adaptation. This situation has the effect of driving overall exposure (3), which then reinforces generic drivers of societal risks. This maladaptive cycle also frames the 'business as usual' paradox: insurance both enables short-term resilience at the individual scale, but simultaneously drives risk and the resultant need to be 'resilient' in the longer term. In other words, it promotes resilience through the diffusion of responsibility, yet abates the incentive to act. Here the 'business as usual' terminology reveals a dual meaning, both the speedy recovery after detriment and the normalisation of risk as a business in itself.

This maladaptive cycle reflects dysfunctionality in other ways too. As a market, the provision of insurance or compensation for loss due to flooding and similar hazards is neither always adequate nor is it enjoyed by all exposed to flood risk. Some citizens may not even be able to gain insurance to progress to the recovery stage, which presents critical questions regarding social justice and vulnerability (O'Neill and O'Neill, 2012; Priest et al., 2005). Neoliberal promotions of personal resilience may have regressive tendencies given how financial limitations or a lack of capacity precludes many from participating. Further, many people have unwittingly purchased homes in areas at high risk of flooding, or have had no choice but to live in areas that are exposed to risks, for example social housing tenants. The recent economic downturn has exacerbated these conditions in that spending on flood defences is being reduced while planning authorities across the EU are realising the value of construction in generating growth. It should be acknowledged that it is not unknown for neoliberal states to

propose interventionist policies to circumvent counterintuitive trends (Castree, 2008), or in this case, to interrupt the maladaptive cycle. For instance, after the Winter 2013/2014 floods in the UK, the government gave each household a one-off (Repair and Renew) grant to make their properties more resilient to floods.

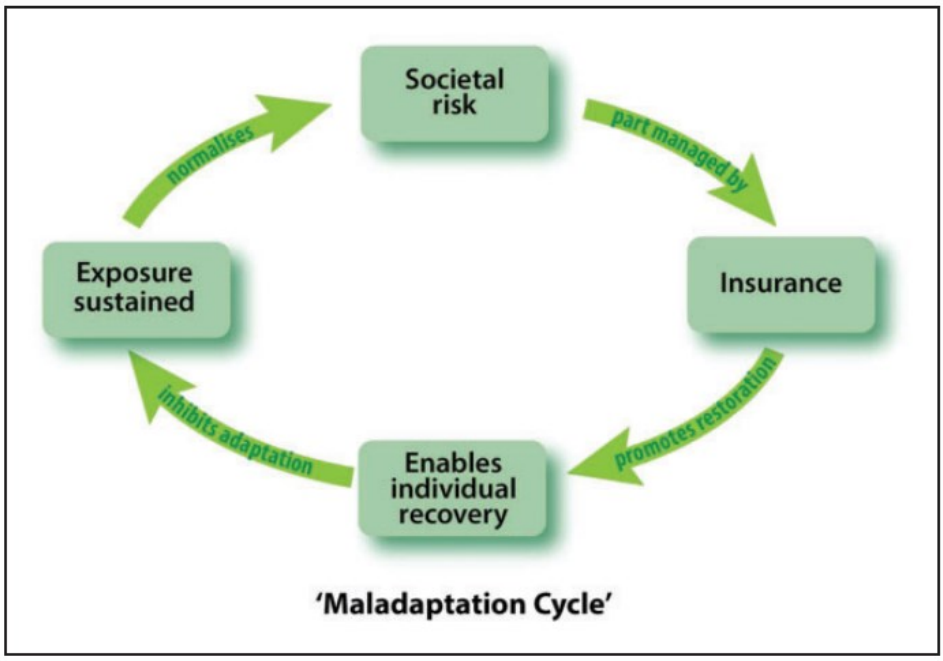

Figure 1. The maladaptation cycle.

Insurance enables recovery, yet the sector has its own aspirations concerned with profit maximisation rather than adaptive capacity, and indeed benefits from this limited iteration of resilience. By consequence, neoliberal trends of personal responsibility and the marketisation of crisis management are further normalised (Klein, 2007), with society managing and normalising the very same risks modernity is producing (Beck, 1992: 21). The fact that insurance drives demand for its services with a focus on recovery rather than transformation correlates with Beck's (1992: 57) argument that the private sector: 'copes with the symptoms and symbols of risks. As they are dealt with in this way, the risks must grow, they must not actually be eliminated as causes or sources'. Recovery is thus prioritised over prevention: rather than insurance engendering transformative resilience, it normalises societal risk and recovery from the consequences of risks.

Conclusion—Resilience and the inadequacies of 'business as usual'

Resilience has infiltrated a broad range of policy agendas and practical initiatives as a means to manage change and uncertainty. Cities, planning and discussions over space utility and management have always had a strong futurity dimension, from the utopia movements to contemporary discussions regarding sustainable cities or post-carbon societies. Narratives concerning 'resilient futures' have a similar framing ontology, exerting influence over the present and activating communities, citizens and businesses in self-governance agendas. Drawing upon case studies, interviews and workshops, the paper has explored nuances regarding the relationship between insurance and resilience and in particular the areas of conflict operating behind the veneer of congruity. Gunderson and Holling (2002) discussed how there was a tension between constancy and change within the resilience discourse. But

this research also reveals other conflicts whereby pursuing one strand of resilience may impede another: for instance between individuals and society; between short and long term time horizons; and between recovery and adaptation.

Presented as proactive and empowering, the emphasising of stability characteristics of resilience has regressive implications. There is no doubt of the important role that insurance has to play not only in facilitating recovery and in framing the hue of resilience that is adopted by society. The industry is instrumental in framing hazard preparation by constructing the urban fabric and social conditions that will encounter the 'next' storm or hazard. Yet insurance is ultimately responsive; the emphasis on 'business as usual' and 'like-for-like' restoration – so central to the marketing of insurance – is ill-suited to fostering new systemic trajectories or reducing broader sociocultural drivers of risk. Paradoxically, it perpetuates risk, privileges recovery over precaution and promotes limited – if not false – senses of security. Likewise, communities are treated as passive receptacles of risk, 'protected' but potentially locked in a maladaptive cycle of detriment and recovery in a similar vein to the 'safe development paradox' (Burby, 2006) or the 'escalator effect' (Parker, 1995) within floodplain management whereby defences create a perception of safety. Accessible and comprehensive insurance may mean that developers are willing to continue risky behaviour, for instance building on floodplains, whilst citizens are more willing to live in hazardous areas, as markets for risk management exist and post-event support is available.

Given how the aspirations of resilience lie at the apex of bureaucratic and policy objectives, there is an urgent need to examine the impact of efforts to create resilient societies. Resilience, though commonly used in the singular, refers to a multitude of strategies that may vie for precedence, that converge or diverge and that can oscillate between being transformational and conservative. As discussed in this paper, certain articulations of resilience can even be exclusive, with one mode precluding others. This observation becomes all the more pertinent, given that it is now acknowledged that some interpretations of resilience are more progressive than others, necessitating careful reconciliation. Insurance helps society and businesses to withstand shocks. But not only does this do little to reduce future hazards, it may serve to drive overall societal risk in a maladaptive manner. To this extent it can appear temporally and spatially blind, privileging rebound interpretations of resilience, rather than potentially more progressive, adaptive modes. This is ultimately fatalistic, failing to challenge the status quo, leaving current norms that drive risky behaviour unchallenged and embedding potentially maladaptive techno-rational responses to risk.

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[i] The seven partner countries involved in the research were: Cyprus, France, Germany, Greece, Netherlands, Spain, and the UK.

[ii] Such government compensations is often on a highly discretionary basis and rarely provides the full cost of damages and recovery.

[iii] The same respondent recognised that refusing to insure high-risk properties would have potentially severe implications for those that may not be able to protect their home, either due to technological or financial restraints.